



# ***EXPANDING FORWARD OPERATING BASES IN AFGHANISTAN***

*By Captain Nicholas O. Melin*

**T**he Soldiers of Task Force Pacemaker completed numerous road construction missions during their deployment to Afghanistan. However, their nation-building efforts and major infrastructure improvements could not be conducted until they first constructed safe havens to operate from. Three forward operating bases (FOBs) were constructed and two existing FOBs were expanded across southeastern Afghanistan. The expansion of the Sharana Provincial Reconstruction Team (PRT) base is a good example of military construction in Afghanistan. An analysis of this project provides valuable lessons learned that can be applied to the construction of future base camps in austere areas.

The Sharana PRT base is located outside of the city of Sharana. On open terrain with good drainage and no local national property rights issues, it was ideal for expansion from a small base to a larger logistical and operational hub. Sharana, the capital and second largest city in Paktika Province, had a network of roads that required improvement to support the new democratic local government.

The expansion of the Sharana PRT base allowed the construction of improved gravel roads in an area long deprived

of a reliable transportation network. Linking the capitals of Paktika and Paktia Provinces to the main paved ring road system—the major trade roads that form a loop by connecting major cities—allowed the central government of Afghanistan to move more freely in areas that were isolated from government influence. Medical assistance, international aid, and security from the Afghan National Army and the Afghan National Police were all benefits to the Afghan people resulting from the FOB and road construction.

## **The Plan**

**D**uring the summer of 2005, Task Force Sword (the engineer brigade headquartered in Afghanistan) chose the Sharana PRT base as the future hub of engineer operations in Paktika Province. It was to house elements of Task Force Sword as they completed road construction projects in the area. Task Force Pacemaker would then take over the expansion, while continuing the construction of a network of two-lane gravel roads around the town. All Task Force Pacemaker elements would then move to the Sharana PRT base in December 2005 to support the

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turnover of Regional Command South to the International Security Assistance Forces (ISAF). The final phase of the expansion would ensure that all facilities were complete, allowing incoming units to use the Sharana PRT base as a hub of operations for continued road construction efforts in the area.

### Getting Started

**T**he first phase of construction began in early September 2005. Force protection walls and guard towers were built, and two Soldier living areas were initiated. By the end of October, significant progress was made on phase one objectives, with construction of Soldier barracks and a command post completed.

Task Force Pacemaker assumed the mission in October 2005. Upon arrival, a survey of construction operations was conducted to decide which areas required action next. Due to mission requirements, road construction projects in the area required that the Sharana PRT base be expanded within a two-to three-month period. The need to provide immediate living space had led to rapid construction of living facilities, so the ground had not been leveled, compacted, or graveled, and many buildings were constructed on a slope. Additionally, some facilities needed to be winterized. Drainage in some areas was insufficient for wet Afghan winters, and a comprehensive electrical design and layout was necessary for efficient use of generators.

The two most pressing issues were materials management and funding. The surge of large amounts of construction materials into the small base made materials management difficult. Also, there was an increase in troop requirements in the middle of the project that made initial estimates no longer valid.

- Although a system was already in place to track materials on the FOB, they were not consolidated and allocated to projects by priority. This led to confusion with multiple units conducting construction operations.
- An audit of project funding also revealed shortfalls. Funding was provided in three separate segments, corresponding with the construction phases. However, cost estimates for the project were determined without completing a design and full material estimate. Thus, the actual cost of materials was far higher than forecasted.

In order to address these issues and complete the expansion on time, Task Force Pacemaker assembled a construction team of military engineers, local Afghan contractors, and civilian contractors from KBR (formerly Kellogg, Brown and Root).

### Completing the Mission

**T**he first step was to create a comprehensive timeline of all construction tasks. Priorities were established for the remaining tasks, with the focus on completing the force protection plan; providing proper living areas and sanitation; and expanding morale, welfare, and recreation facilities. Combined Joint Task Force 76 dictated that facilities be jointly used by all tenant units, so most facilities on the FOB required expansion.

The designs were reviewed, and additional tasks were added to meet the construction intent. An example is the construction of a pump house—a required winterization task—for the expansion well. Additionally, there was a need for a clarification and water storage system on the base. These three needs were combined into a single facility, which was not initially identified as a task.

A contracting officer was assigned to manage all contracts, and the progress of those facilities was integrated into the construction plan. The local construction community provided valuable manpower for large tasks, and local construction methods were suitable for use on the FOBs in many areas. Designs and material estimates were completed for all facilities to correct funding issues. The tasks were then redistributed through the three funding blocks to ensure that all stayed within cost limitations.

During construction operations, it became apparent that consolidating and tracking construction materials was necessary. With more than 80 individual projects at various stages of completion, there were huge amounts of construction materials. No shortage lists existed to track what was available for construction and what should be ordered. A complete inventory of the shipping containers—to include location, contents, and serial numbers—was conducted, and a database of all construction materials on the Sharana PRT base was



U.S. Army photo by 1LT Claudia Crossland, Task Force Pacemaker

**A small emplacement excavator (SEE) operator digs through the rocky terrain so sewage pipes can be laid.**





**Soldiers transport hand-mixed concrete with wheelbarrows during the placement of a maintenance pad.**

established. Finally, all construction materials were consolidated into a single area, and the S-4 tracked and controlled their release.

Surveyors conducted a topographic survey of the base to show areas where drainage issues would appear once winter rains began. Additionally, they mapped electrical and communications lines on the base and established a master drawing of the expansion. To prevent severing lines during construction operations, a dig permit system was established.

The surveyors determined a layout for the sewer and water distribution systems, including the repair and integration of the existing water and sewer systems inside the compound. Unfortunately, the ground beneath the expansion site was solid rock a foot below the surface. An excavation plan to dig to a depth of 4 feet (below the frost line) for all sewer and water lines was required. The result was one water system with two operational and insulated wells and all sewage generated on the base flowing to a two-basin oxidation pond.

### **Obstacles**

**T**he constructing commander faced a number of obstacles that complicated construction. The first was employment of local national workers. Many of the

workers were unskilled and could only do the most basic tasks, such as filling sandbags. As a result, the employment of large numbers of these workers actually slowed the work. Additionally, the commander had to ensure that proper force protection methods were used when interacting with local nationals. Despite these issues, integrating local workers provided extra muscle for tasks and generated good will in the community by providing jobs.

Another obstacle to efficient construction was the flow of materials. By December, the stockpiled materials on the Sharana PRT base were largely depleted. Local national haul of materials proved unreliable, and long haul distances from coalition logistical bases slowed the flow of materials. In order to continue construction, each Task Force Pacemaker platoon engaged multiple tasks. This allowed progress to continue with available materials while additional materials were transported. However, many tasks remained unfinished for months while awaiting key construction materials.

### **Tactics, Techniques, and Procedures**

**C**onstruction at the Sharana PRT base highlights tactics, techniques, and procedures (TTP) to minimize the difficulties of construction in an austere theater of operations. They are as follows:



- Determine the purpose of the expansion. What is the standard of construction for the expansion? If building to facilitate a construction project, determine the need for facilities after your departure.
- Determine funding constraints and a timeline for receiving construction materials on-site. In Afghanistan, the funding process—from submitting the funding request paperwork to approval and receipt of materials—takes at least two months. The design, bill of materials (BOM), and all contracting requirements need to be determined two months in advance.
- Conduct a thorough reconnaissance and construction assessment. The following information is essential for expanding an FOB:
  - Electrical layout and capacity.
  - Water distribution system layout.
  - Sewer system layout.
  - Available square footage within existing perimeter.
  - Available area outside of the existing walls.
  - Portion to be cleared.
  - Existing facilities on the base and their capability for co-use.
- Drainage analysis.
- Location for grey and, if necessary, black water disposal.
- Topographic survey results of the construction area for accurate initial design.
- Develop an initial plan for construction operations.
  - Determine the population requirement (adding a 10 percent overage for surge).
  - Calculate the number of required shower heads, toilet seats, and urinal soakage pits.
  - Determine the layout for the water distribution system. Minimize the system size to save on required plumbing materials.
  - Determine a force protection plan.
  - Identify theater-level requirements before construction.
  - Determine heating and cooling requirements.
  - Determine dining facility requirements.
  - Develop an initial FOB layout.
  - Determine the required electrical layout.
  - Integrate delays in receiving construction materials.
  - Determine the required number and type of contractors required for the expansion. Their expertise is essential for heating, ventilation, and air-conditioning work; plumbing; and electricity.
- Order construction materials as soon as possible. Essential items are in high demand across the theater and may take two or more months to procure.
  - Develop a detailed BOM.
  - Prioritize construction materials by phase of the construction project, taking into account delays caused by local national contract transportation.
  - Stockpile and secure materials at the location, if possible, or—at a minimum—transport materials for the initial construction with the unit by military convoy.
- Conduct troop-to-task for projects (assigning the proper number of Soldiers and types of equipment to successfully execute a task).
  - Consider both vertical and horizontal tasks.
  - Identify key equipment shortages that affect progress.
  - Determine the number of local nationals to employ and the contracted equipment set required to fill shortages.
  - Determine tasks that must be contracted as soon as possible.
  - Initiate the process of finding contractors and securing funding.

- Monitor all local national contractors, and expect delays with any task completed using contract rather than military labor. Local holidays will halt all local national labor.

Potential projects for engineer units in areas of operation like Afghanistan are varied. There are situations where time is not available for detailed planning, and units must attempt to execute the mission as completely as possible, given the available resources. Application of some or all of these TTP should help to avoid potential construction issues and ensure the timely completion of construction.

### The Results

**W**hen completed, the capability of the Sharana PRT base was greatly expanded. The maximum supportable population increased more than seven times its original size. The base now has showers, an operational laundry facility, and latrines with flushing toilets. The water system has operational pump houses that provide redundancy for the entire facility. The motor pool has office buildings and maintenance facilities that provide heated, all-weather maintenance areas for a battalion task force and a direct-support shop.

The Task Force Pacemaker expansion of FOBs supported the construction of road networks throughout Afghanistan.

The long-term result was that the capitals in Zabul, Paktika, and Paktia Provinces were linked to the paved ring road around Afghanistan. This new freedom of movement allowed the central government of Afghanistan to move easier in areas that were once isolated from government influence. Medical assistance, international aid, and security from the Afghan National Army and the Afghan National Police were all benefits to the Afghan people resulting from the road construction.

The roads also facilitated the growth of the Afghan economy by providing reliable, all-weather routes for goods and services to move between provinces. The increase in traffic along the routes and the appearance of gas stations and markets in areas that were deserted before road work was completed is evidence that the road campaign conducted by United States Army engineers in Afghanistan made a difference.



*Captain Melin, the Commander of Bravo Company, 864th Engineer Battalion (Combat) (Heavy), conducts road construction and forward operating base improvement. He previously managed the Task Force Pacemaker construction projects as the Assistant S-3 for the 864th Engineer Battalion at Fort Lewis, Washington. He is a graduate of the United States Military Academy.*